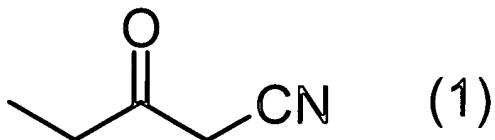


In the Claims:

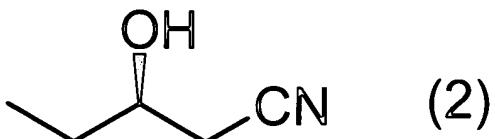
Please cancel Claims 20-35. Please add new Claims 36-52. Please amend Claims 1-9, 11, 13, 14, and 17 as follows (the changes in these Claims are shown with ~~strikethrough~~ for deleted matter and underlines for added matter). A complete listing of the claims with proper claim identifiers is set forth below.

1. (Currently amended) An acetoacetyl-CoA reductase ~~having physicochemical properties shown in following (1) and (2), wherein in which:~~

~~(1)~~ (a) the reductase acts, using NADPH or NADH as a coenzyme, on a 3-ketopentanenitrile represented by ~~following~~ formula (1):



to produce a (R)-3-hydroxypentanenitrile represented by ~~following~~ formula (2):



having an optical purity of 99%e.e. or more; and

~~(2)~~ (b) the reductase has a molecular weight of about 85,500 as determined by gel filtration analysis and about 26,000 as determined by SDS-polyacrylamide electrophoresis analysis.

2. (Currently amended) The acetoacetyl-CoA reductase according to claim 1, ~~further having physicochemical properties shown in following (3) to (5) in which: wherein~~

~~(3)~~ the reductase has an optimum temperature 27 to 33°C;
~~(4)~~ the reductase has an optimum pH of 5.5 to 6.5; and
~~(5)~~ the reductase is inhibited by p-chloromercuribenzoic acid, copper sulfate, silver nitrate, or mercury chloride ~~as an inhibitor~~.

3. (Currently amended) An acetoacetyl-CoA reductase ~~which is a polypeptide described in following (a) or (b): comprising a polypeptide, wherein~~

(a) ~~a the polypeptide consisting~~ consists of an amino acid sequence represented by of SEQ ID NO: 1 ~~of the Sequence Listing~~; or

(b) ~~a the polypeptide which consists of the~~ an amino acid sequence resulting from addition, deletion or substitution of one or more amino acid residues in the amino acid sequence ~~represented by~~ of SEQ ID NO: 1 ~~of the Sequence Listing~~ and ~~has the activity of acting~~ acts on a 3-ketopentanenitrile to produce a (R)-3-hydroxypentanenitrile having an optical purity of 99%e.e. or more.

4. (Currently amended) The acetoacetyl-CoA reductase according to ~~any one of claims 1 to 3~~ claim 1, wherein the reductase is derived from a microorganism belonging to the genus *Achromobacter*.

5. (Currently amended) The acetoacetyl-CoA reductase according to ~~any one of claims 1 to 3~~ claim 1, wherein the reductase is derived from a microorganism belonging to *Achromobacter xylosoxidans* subsp. *denitrificans*.

6. (Currently amended) The acetoacetyl-CoA reductase according to ~~any one of claims 1 to 3~~ claim 1, wherein the reductase is derived from *Achromobacter xylosoxidans* subsp. *denitrificans* IFO15125 strain.

7. (Currently amended) A ~~DNA~~ nucleotide sequence encoding the acetoacetyl-CoA reductase according to ~~any one of claims 1 to 6~~ of claim 1.

8. (Currently amended) A ~~DNA~~ nucleotide sequence consisting of a base sequence represented by ~~SEQ ID NO: 2 of the Sequence Listing~~ encoding the acetoacetyl-CoA reductase according to of claim 3.

9. (Currently amended) A recombinant vector comprising the ~~DNA according to nucleotide sequence of~~ claim 7 or 8.

10. (Original) The recombinant vector according to claim 9 represented by pNTAX in Figure 2.

11. (Currently amended) The recombinant vector according to claim 10 further comprising a ~~DNA~~ nucleotide sequence encoding a glucose dehydrogenase.

12. (Original) The recombinant vector according to claim 11, wherein the glucose dehydrogenase is derived from *Bacillus megaterium*.

13. (Currently amended) A transformant obtained by transforming a host cell using the recombinant vector ~~according to any one of claims 9 to 12 of claim 9~~.

14. (Currently amended) A transformant obtained by transforming a host cell using a first recombinant vector comprising the ~~DNA according to nucleotide sequence of~~ claim 7 or 8 and a second recombinant vector comprising a ~~DNA~~ nucleotide sequence encoding a glucose hydrogenase.

15. (Original) The transformant according to claim 14, wherein the first recombinant vector is pNTAX and the glucose hydrogenase is derived from *Bacillus megaterium*.

16. (Original) The transformant according to claim 14, wherein the first recombinant vector is pNTAX and the second recombinant vector is a recombinant vector represented by pSTVG in Figure 2.

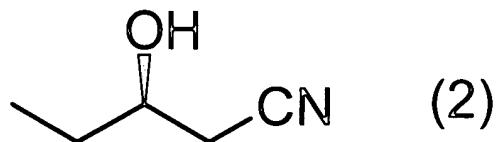
17. (Currently amended) The transformant according to ~~any one of claims 13 to 16~~ claim 13, wherein the host cell is *Escherichia coli*.

18. (Original) The transformant according to claim 17, wherein the transformant is *E.coli* HB101 (pNTAX) (FERM BP-10126).

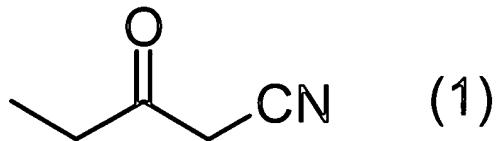
19. (Original) The transformant according to claim 17, wherein the transformant is *E.coli* HB101 (pNTAX, pSTVG) (FERM P-19567).

20-35. (Cancelled)

36. (New) A process for producing a (R)-3-hydroxypentanenitrile of formula (2):



the process comprising allowing the acetoacetyl-CoA reductase according to claim 1 or 3 to act on a 3-ketopentanenitrile of formula (1):



37. (New) The process according to claim 36, wherein the (R)-3-hydroxypentanenitrile has an optical purity of 95%e.e. or more.

38. (New) The process according to claim 36, wherein the acetoacetyl-CoA reductase is a culture product of a transformant producing the acetoacetyl-CoA.

39. (New) A process for producing an (R)-3-hydroxybutanoic ester of formula (4):



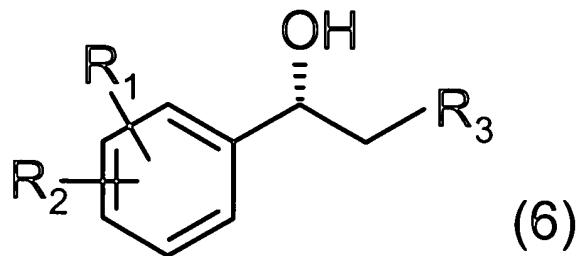
the process comprising allowing the acetoacetyl-CoA reductase according to claim 1 or 3 to act on an acetoacetic ester of formula (3):



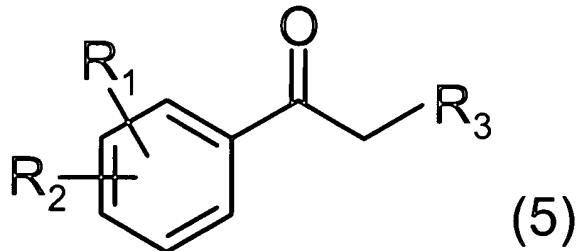
wherein R in formulas (3) and (4) is a lower alkyl group which may be optionally substituted or branched.

40. (New) The process according to claim 39, wherein the acetoacetyl-CoA reductase is a culture product of a transformant producing the acetoacetyl-CoA.

41. (New) A process for producing an optically active 1-phenylethanol derivative of formula (6):



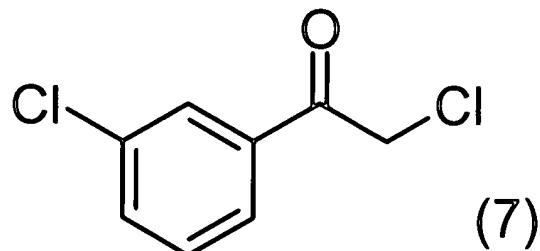
the process comprising allowing the acetoacetyl-CoA reductase according to claim 1 or 3 to act on an 1-phenylethanone derivative of formula (5):



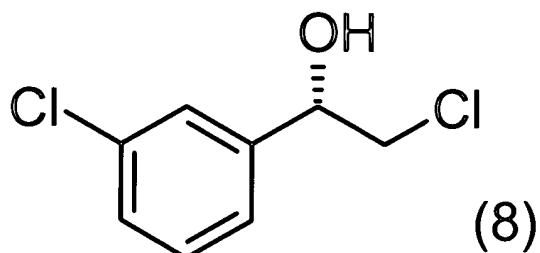
wherein R₁ and R₂ in formulas (5) and (6) each represent a hydrogen atom, a halogen atom, an alkoxy group, or a nitro group, and may be the same or different respectively; and R₃ in formulas (5) and (6) represents a hydrogen atom,

a halogen atom, a hydroxyl group, or an alkyl group which may be optionally substituted.

42. (New) The process according to claim 41, wherein the acetoacetyl-CoA reductase acts on 2-chloro-1-(3'-chlorophenyl)ethanone of formula (7):



to produce (R)-2-chloro-1-(3'-chlorophenyl)ethanol of formula (8):



43. (New) The process according to claim 41, wherein the acetoacetyl-CoA reductase is a culture product of a transformant producing the acetoacetyl-CoA.

44. (New) A recombinant vector comprising a nucleotide sequence selected from the group consisting of

- (a) a nucleotide sequence encoding a polypeptide consisting of an amino acid sequence of SEQ ID NO: 3;
- (b) a nucleotide sequence encoding a polypeptide consisting of an amino acid sequence resulting from addition, deletion or substitution of one or more amino acid residues in the amino acid sequence of SEQ ID NO: 3 and has an activity of asymmetrically reducing a 3-ketopentanenitrile to produce a (R)-3-hydroxypentanenitrile having an optical purity of 95%e.e. or more; or

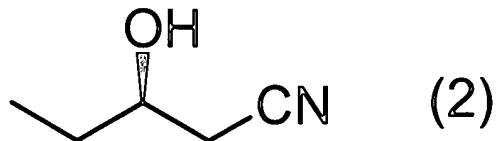
(c) a nucleotide sequence hybridizing under stringent conditions to a nucleotide sequence consisting of a base sequence complementary to the base sequence of SEQ ID NO: 4 and encoding a polypeptide having an activity of asymmetrically reducing a 3-ketopentanenitrile to produce a (R)-3-hydroxypentanenitrile having an optical purity of 95%e.e. or more.

45. (New) The recombinant vector according to claim 44, comprising a nucleotide sequence consisting of a base sequence represented by SEQ ID NO: 4 and represented as pNTRE in Figure 3.

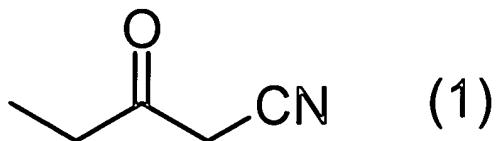
46. (New) The recombinant vector according to claim 44, further comprising a nucleotide sequence encoding a glucose hydrogenase.

47. (New) A transformant obtained by transforming a host cell with the recombinant vector of claim 44.

48. (New) A process for producing a (R)-3-hydroxypentanenitrile of formula (2):



the process comprising allowing a culture product of the transformant of claim 47 to act on a 3-ketopentanenitrile of formula (1):



49. (New) The process according to claim 48, wherein the (R)-3-hydroxypentanenitrile has an optical purity of 95%e.e. or more.

50. (New) A process for producing an (R)-3-hydroxybutanoic ester of formula (4):

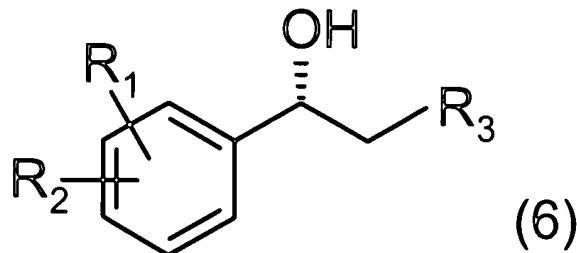


the process comprising allowing a culture product of the transformant according to claim 47 to act on an acetoacetic ester of formula (3):

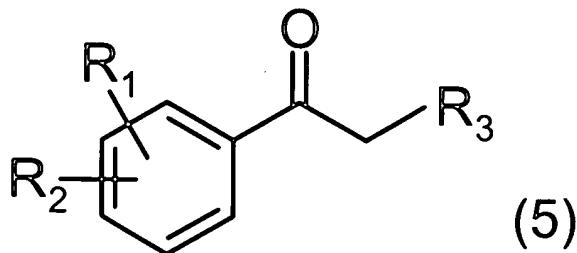


wherein R in formulas (3) and (4) is a lower alkyl group which may be optionally substituted or branched.

51. (New) A process for producing an optically active 1-phenylethanol derivative of formula (6):



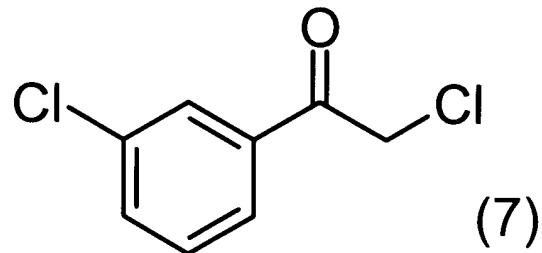
the process comprising allowing a culture product of the transformant of claim 47 to act on an 1-phenylethanone derivative of formula (5):



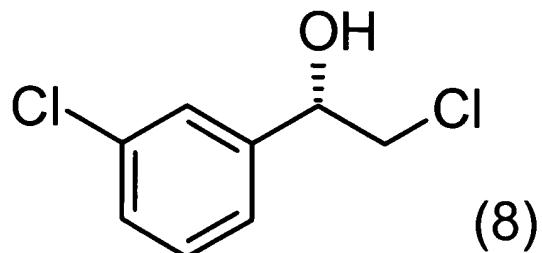
wherein R₁ and R₂ in formulas (5) and (6) each represent a hydrogen atom, a halogen atom, an alkoxy group, or a nitro group, and may be the same or

different respectively; and R₃ in formulas (5) and (6) represents a hydrogen atom, a halogen atom, a hydroxyl group, or an alkyl group which may be optionally substituted.

52. (New) The process according to claim 51, wherein the culture product of the transformant acts on 2-chloro-1-(3'-chlorophenyl)ethanone of formula (7):



to produce (R)-2-chloro-1-(3'-chlorophenyl)ethanol of formula (8):



CLAIM STATUS

Claims 1-9, 11, 13, 14, and 17 have been amended. Claims 20-35 have been canceled. New claims 36-52 were added. Amendments to Claims 1-9, 11, 13, 14, and 17 relate to form and/or grammar only for the purpose of increasing the clarity of each.

Support for the new Claims may be found throughout the specification, including the following paragraphs and claims:

Claim 36, see e.g., original claim 20 and paragraphs [0018]-[0021] and [0057];

Claim 37, see e.g., original claim 21 and paragraph [0057];

Claim 38, see e.g., paragraph [0043];

Claim 39, see e.g., original claim 22 and paragraphs [0067]-[0071];

Claim 40, see e.g., paragraphs [0043] and [0073];

Claim 41, see e.g., original claim 23 and paragraphs [0074]-[0078];

Claim 42, see e.g., original claim 24 and paragraphs [0078]-[0082];

Claim 43, see e.g., paragraph [0084];

Claim 44, see e.g., paragraphs [0035], [0051]-[0053];

Claim 45, see e.g., paragraph [0059];

Claim 46, see e.g., paragraph [0043];

Claim 47, see e.g., paragraph [0045];

Claims 48, 50-52, see e.g., paragraphs [0066] and [0074]-[0083]; and

Claim 49, see e.g., paragraph [0057].

No new matter has been added.

Claims 1-19 and 36-52 are pending.